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Atty. Dkt. No. SALK3140US-1 (088802-9803)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants

Downes et al.

Title:

STRUCTURE OF THE

FARNESOID X RECEPTOR LIGAND BINDING DOMAIN AND METHODS OF USE

THEREFOR

Appl. No.:

10/535,042

Filing Date: 05/13/2005

Examiner:

Not yet assigned

Art Unit:

1646

Conf. No.

2218

CERTIFICATE OF MAILING I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as First Class Mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the date below. Stephen E. Reiter (Printed Name) March 27, 2006 (Date of Deposit)

INFORMATION DISCLOSURE STATEMENT **UNDER 37 CFR §1.56**

Mail Stop Amendment-IDS Commissioner for Patents P.O. Box 1450 Alexandria, VA 22313-1450

Sir:

Submitted herewith on Form PTO/SB/08 is a listing of documents known to Applicants in order to comply with Applicants' duty of disclosure pursuant to 37 CFR §1.56.

A copy of each non-U.S. patent document and each non-patent document is being submitted to comply with the provisions of 37 CFR §1.97 and §1.98.

The submission of any document herewith, which is not a statutory bar, is not intended as an admission that such document constitutes prior art against the claims of the present application or that such document is considered material to patentability as defined in 37 CFR

DLMR_281863.1.

§1.56(b). Applicants do not waive any rights to take any action which would be appropriate to antedate or otherwise remove as a competent reference any document which is determined to be a prima facie art reference against the claims of the present application.

TIMING OF THE DISCLOSURE

The listed documents are being submitted in compliance with 37 CFR §1.97(b), before the mailing date of the first Office Action on the merits.

RELEVANCE OF EACH DOCUMENT

All of the documents are in English.

Applicants respectfully request that each listed document be considered by the Examiner and be made of record in the present application and that an initialed copy of Form PTO/SB/08 be returned in accordance with MPEP §609.

The Commissioner is hereby authorized to charge any additional fees which may be required regarding this application under 37 CFR §§ 1.16-1.17, or credit any overpayment, to Deposit Account No. 50-0872. Should no proper payment be enclosed herewith, as by a check being in the wrong amount, unsigned, post-dated, otherwise improper or informal or even entirely missing, the Commissioner is authorized to charge the unpaid amount to Deposit Account No. 50-0872.

Respectfully submitted,

FOLEY & LARDNER LLP

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Stephen E. Reiter Attorney for Applicant Registration No. 31,192

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

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	Substitute for form 1	1449B/PTO	Complete if Known		
INFORMATION DISCLOSURE STATEMENT BY APPLICANT			Application Number	10/535,042	
			Filing Date	05/13/2005	
			First Named Inventor	Downes et al.	
		•	Group Art Unit	1646	
(use as many sheets as necessary)			Examiner Name	Unknown	
Sheet	1	of 5	Attorney Docket Number	SALK3140US-1 (088802-9803)	

U.S. PATENT DOCUMENTS							
Examiner Initials*	Cite No. ¹	U.S. Patent Document			Date of Publication of	Pages, Columns, Lines, Where Relevant	
		Number	Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	Cited Document MM-DD-YYYY	Passages or Relevant Figures Appear	
	A1	6184353		Evans	02-06-2001		
			1				

	U.S. PATENT APPLICATION DOCUMENTS								
Examiner Initials*	Cito	U.S. Patent Application Document		Name of Potentias or Applicant of	Filing Date of	Pages, Columns, Lines, Where Relevant			
	Cite No. ¹	Serial Number	Kind Code ² (if known)	Name of Patentee or Applicant of Cited Document	Cited Document MM-DD-YYYY	Passages or Relevant Figures Appear			

	FOREIGN PATENT DOCUMENTS										
Examiner Initials*	Cite No. ¹	Fore Office ³	eign Patent D	Ocument Kind Code ⁵ (if known)	Name of Patentee or Applicant of Cited Documents	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T ⁶			
				(III AII O							

		NON PATENT LITERATURE DOCUMENTS				
Examiner Cite No.1		Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue numb publisher, city and/or country where published.				
	A2	Blumberg and Evans (1998). Orphan nuclear receptors—new ligands and new possibilities. Genes Dev. 12(20), 3149-55.				
	A3	Blumberg et al. (1998). SXR, a novel steroid and xenobiotic-sensing nuclear receptor. Genes Dev. 12(20), 3195-3205.				
	A3	Chiang (2002) Bile Acid regulation of gene expression: roles of nuclear hormone receptors. Endocr Rev. 23(4), 443-463.				

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Examiner	·	Date	
Signature		Considered	

^{*}EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

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¹ Unique citation designation number. ²See attached Kinds of U.S. Patent Documents. ³Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). ⁴For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. ⁵Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. ⁶Applicant is to place a check mark here if English language Translation is attached.

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INFORMATION DISCLOSURE			RE	Application Number	10/535,042		
	STATEMENT BY APPLICANT			Filing Date	05/13/2005		
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				Group Art Unit	1646		
(use as many sheets as necessary)			sary)	Examiner Name	Unknown		
Sheet	2	of 5	•	Attorney Docket Number	SALK3140US-1 (088802-9803)		

	•	NON PATENT LITERATURE DOCUMENTS	
Examiner Initials*	Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁶
	A4	Egea et al. (2000). Crystal structure of the human RXRa ligand-binding domain to its natural ligand: 9-cis	
		retinoic acid EMBO J. 19, 2592-2601.	
	A5	Evans RM. (1988) The steroid and thyroid hormone receptor superfamily. Science. 240(4854), 889-895.	
	A6	Forman et al. (1995). Identification of a nuclear receptor that is activated by farnesol metabolites. Cell 81, 687–693.	
	A7	Goodwin et al (2000). A regulatory cascade of the nuclear receptors FXR, SHP-1, and LRH-1 represses	
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	A8	Grober et al., (1999) Identification of a bile acid-responsive element in the human ileal bile acid-binding	
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	A9	Jez et al. (2000) Dissection of malonyl-coenzyme A decarboxylation from polyketide formation in the	
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	A10	Kast et al. (2002). Regulation of multidrug resistance-associated protein 2 (ABCC2) by the nuclear	
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,		Chem. 277(4), 2908-15.	
	A11	Laffitte et al. (2000). Identification of the DNA binding specificity and potential target genes for the farnesoid	
		X-activated receptor. J Biol Chem. 275(14), 10638-47	

Examiner	Δ	Date	
Signature	C	Considered	

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INFORMATION DISCLOSURE				Application Number	10/535,042	
STATEMENT BY APPLICANT			CANT	Filing Date	05/13/2005	
				First Named Inventor	Downes et al.	
				Group Art Unit	1646	
	(use as many sheet	ts as ne	cessary)	Examiner Name	Unknown	
Sheet	3	of	5	Attorney Docket Number	SALK3140US-1 (088802-9803)	

	NON PATENT LITERATURE DOCUMENTS						
Examiner Initials*	Cite No.1	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T ⁶				
-	A12	Lattman, Use of the rotation and translation functions. <i>Meth. Enzymol.</i> <b>115</b> :55-77 (1985)	,				
	A13	Makishima et al, (1999) Identification of a nuclear receptor for bile acids. Science. 284(5418), 1362-5					
	A14	McPherson, Crystallization of proteins from polyethylene glycol. <i>J. Biol. Chem.</i> <b>251</b> :6300-6303 (1976)					
	A15	Nicolaou et al. (2000). Natural product-like combinatorial libraries based on privileged structures. 1.  General principles and solid-phase synthesis of benzopyrans. J. Am. Chem. Soc. 122, 9939 – 9953 (2000)					
	A16	Nicolaou et al. (2000). Natural product-like combinatorial libraries based on privileged structures. 2.  Construction of a 10 000-membered benzopyran library by directed split-and-pool chemistry using nanoKans and optical encoding. J. Am. Chem. Soc. 122, 9954 – 9967 (2000)					
	A17	Nicolaou et al. (2000). Natural product-like combinatorial libraries based on privileged structures. 3. The "Libraries from Libraries" principle for diversity enhancement of benzopyran libraries. J. Am. Chem. Soc. 122, 9968 – 9976 (2000)					
	A18	Parks et al. (1999). Bile acids: natural ligands for an orphan nuclear receptor. Science. 284(5418). 1365-8					

Examiner Signature	Date Considered	

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Substitute for form 1449B/PTO INFORMATION DISCLOSURE				Complete if Known		
				Application Number	10/535,042	
STATEMENT BY APPLICANT			CANT	Filing Date	05/13/2005	
				First Named Inventor	Downes et al.	
				Group Art Unit	1646	
(use as many sheets as necessary)			cessary)	Examiner Name	Unknown	
Sheet	4	of	5	Attorney Docket Number	SALK3140US-1 (088802-9803)	

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Cite No. ¹	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.) date, page(s), volume-issue number(s), publisher, city and/or country where published.	T⁵				
A19	Pellicciari et al. (2002). 6-alpha-ethyl-chenodeoxycholic acid (6-ECDCA), a potent and selective FXR					
	agonist endowed with anticholestatic activity. J Med Chem. 45(17), 3569-72					
A20	Rochel et al. (2000). The Crystal Structure of the Nuclear Receptor for Vitamin D Bound to its Natural	-				
	Ligand. Mol Cell 5, 173-179					
A21	Sinal et al. (2000). Targeted disruption of the nuclear receptor FXR/BAR impairs bile acid and lipid					
	homeostasis. Cell: 102(6), 731-44					
A22	Stehlin et al. (2001). X-ray structure of the orphan nuclear receptor RORbeta ligand-binding domain in the					
	active conformation. EMBO J. 20(21), 5822-31					
A23	Urizar et al (2000). The farnesoid X-activated receptor mediates bile acid activation of phospholipid transfer					
	protein gene expression. J Biol Chem. 275(50), 39313-7					
A24	Urizar et al. (2002). A natural product that lowers cholesterol as an antagonist ligand for FXR. Science.					
	296(5573), 1703-6					
A25	Wang et al. (1999) Endogenous bile acids are ligands for the nuclear receptor FXR/BAR. Mol Cell. 3(5),					
	543-53					
	A20 A21 A22 A23	A19 Pellicciari et al. (2002). 6-alpha-ethyl-chenodeoxycholic acid (6-ECDCA), a potent and selective FXR agonist endowed with anticholestatic activity. J Med Chem. 45(17), 3569-72  A20 Rochel et al. (2000). The Crystal Structure of the Nuclear Receptor for Vitamin D Bound to its Natural Ligand. Mol Cell 5, 173-179  A21 Sinal et al. (2000). Targeted disruption of the nuclear receptor FXR/BAR impairs bile acid and lipid homeostasis. Cell: 102(6), 731-44  A22 Stehlin et al. (2001). X-ray structure of the orphan nuclear receptor RORbeta ligand-binding domain in the active conformation. EMBO J. 20(21), 5822-31  A23 Urizar et al (2000). The farnesoid X-activated receptor mediates bile acid activation of phospholipid transfer protein gene expression. J Biol Chem. 275(50), 39313-7  A24 Urizar et al. (2002). A natural product that lowers cholesterol as an antagonist ligand for FXR. Science. 296(5573), 1703-6  A25 Wang et al. (1999) Endogenous bile acids are ligands for the nuclear receptor FXR/BAR. Mol Cell. 3(5),				

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	A26	Watkins et al. (2001). The Human Nuclear Xenobiotic Receptor PXR: Structural Determinants of Directed Promiscuity, Science, 292, 2329-2333				
	A27	Xu et al. (2001). Structural determinants of ligand binding selectivity between the peroxisome proliferator-activated receptors. Proc Natl Acad Sci U S A. 98(24), 13919-24				

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